

IN THE SPECIFICATION:

*Please amend the paragraph beginning on page 1 at line 1 as follows:*

**--A SOLUTION OF METAL-POLYMER CHOLATE(S)CHELATE(S) AND  
APPLICATIONS THEREOF--**

*At page 1, line 3 of the specification please insert the following heading and paragraph:*

This application is for entry into the U.S. National Phase under § 371 for International Application No. PCT/CN2005/000132 having an international filing date of January 31, 2005 and claiming priority to Chinese Applications Nos. 200410004572.3 filed February 23, 2004 and 200410101965.6 filed December 19, 2004, and from which priority is claimed under all applicable sections of Title 35 of the United States Code including but not limited to, Sections 120, 363 and 365(c).

*Please amend the paragraph beginning on page 1 at line 6 as follows:*

--The present invention relates to a solution of metal-polymer cholate(s)chelate(s) and applications thereof, and more particularly to a solution of metal-polymer cholate(s)chelate(s) and applications thereof for a condensation solution, an oxidizing condensation solution and other reacting solutions, and the solution of metal-polymer cholate(s)chelate(s) is used for various applications and chemical engineering areas such as catalyses, gas detections, artificial imitated chitosan solutions, artificial imitated glucosamines, disinfectants, biochemical reactions for fermentation, biological proteins and their metabolite purification, metal enzyme biocatalysts, dry activation for protein enzyme, genetic engineering, bacteria preservation systems, cell or bacteria or protein enzyme

culture medium, medical treatments, oil products, plants, ~~semiconductors~~semiconductors, nano filtration, nano material production, nano inorganic matters, nano ceramics, nano plastics, nano textiles, batteries, liquid crystals, and biochips, so as to remove organic solvent gases and other gases as well as processing solvent solutions.--

*Please amend the paragraph beginning on page 1 at line 21 as follows:*

--In general, a condensation is an important process for chemical engineering, and it is commonly known that a styrene gas can be changed into polystyrene solid, and a monomer can be changed into a solid polymer, and these changes are made by condensation and polymerization. However, a polymerization sometimes needs an initialization (such as a partial oxidation) to obtain a successful reaction. In early stages, the structure of a condensation catalyst is very complicated, and an initialization (or a partial oxidation) and a condensation are indispensable to each other. Unlike the present oxidation and condensation that can be held at the same time, a stable gas requires an oxidation and a condensation for the reactions, and some gases even require high temperature and pressure for the reactions, and thus the investments, costs, financial resources and material resources are obviously huge. The present invention comes with a very simple structure and also requires a catalyst and a carrier with the function of performing condensations, oxidizing condensations and other reactions to process organic solvent gases and other gases. In early days, there were carriers for absorbing and neutralizing gases, but there was no carrier to deal with a solvent gas directly, and the reacting carriers at early days came with a very short life. However, the physiologically active life of the present hydroxypropylmethyl celluloses (HPMC) and other matters with special functional groups can be extended unlimitedly and developed to be an artificial imitated

chitosan solution containing metal ions, so as to provide high-efficiency, high-density, high-activation and long-life biological carriers. The solution of metal-polymer ~~cholate(s)chelate(s)~~ is used for gas detections and the solution also becomes a metal enzyme biocatalyst.--

*Please amend the paragraph beginning on page 2 at line 18 as follows:*

--The solution of metal-polymer ~~cholate(s)chelate(s)~~ can be developed further to provide novel biochemical enzyme systems and enzyme immobilization systems. The immobilization and preservation of bacteria rely on nitrogen gas for the preservation for a long time. The related cultivation and purification are not easy at all and always get contaminated easily, and thus it is necessary to change the carrier after a specific period of time. The concentration of bacteria cannot reach a high level, and thus the potency is very limited. When bacteria are cultivated, the metabolism issue of the nutrition sources is generally taken into consideration, but the chitosan solution or chitosan or humic acid immitated by the hydroxypropylmethyl cellulose (HPMC) at a specific combination does not need to consider the ~~metabolism~~ issue of the ~~nutrition~~ sources anymore. The solution of metal-polymer ~~cholate(s)chelate(s)~~ is used to replace the conventional culture medium with a powerful cultivation of bacteria, enzymes, nucleic acids and cells and also used to develop biological proteins and purifying its metabolite. In the nano technology, a metal solution usually comes with a size of  $10^{-6}$  m, and will achieve a nanometer ( $10^{-9}$  meter) scale after the solution is dried. The nano scale can be achieved generally by going through a sol-gel method to convert the metal solution into an organic metal, and the chemical process is very complicated. However, the present new enzyme system can provide nano applications for nano filtrations, nano ceramics, nano plastics and nano textiles. The process for the waste solvent treatment is the same, and

thus a quick room-temperature condensation and oxidizing condensation can be achieved, and the previous infeasible waste solvent treatment is made feasible now.--

*Please amend the paragraph beginning on page 3 at line 14 as follows:*

--In view of the shortcomings of the prior art, the inventor of the present invention based on years of experience to conduct extensively researches and experiments, and finally developed a solution of metal-polymer chelate(s)chelate(s) and applications thereof, in hope of providing a long needed solution for related problems.--

*Please amend the paragraph beginning on page 4 at line 10 as follows:*

--In view of the existing shortcomings of the prior art, the inventor of the present invention based on years of experience and professional knowledge to conduct extensively researches and experiments, and finally invented a solution of metal-polymer chelate(s)chelate(s) and applications thereof, in hope of overcoming the foregoing shortcomings.--

*Please amend the paragraph beginning on page 4 at line 17 as follows:*

--Therefore, it is a primary objective of the present invention to overcome the shortcomings of the prior art by providing a novel solution of metal-polymer chelate(s)chelate(s) that features good oxidation, degradation, condensation, and oxidizing condensation capabilities.--

*Please amend the paragraph beginning on page 4 at line 21 as follows:*

--Another objective of the present invention is to provide a solution of metal-polymer chelate(s)chelate(s) that is used extensively in the technical areas of

chemical engineering, gas detection, artificial imitated chitosan solution, artificial imitated glucosamine, disinfectant, biochemical reaction for fermentation, biological protein and its metabolite purification, dry metal enzyme biocatalyst for promoting the activity of protein enzymes, genetic engineering, bacteria preservation system, cell or bacteria or protein enzyme culture medium, medical treatment, oil product, plant, ~~semiconductor~~semiconductor, nano filtration, nano material production, nano inorganic matter, nano ceramic, nano plastic, nano textile, battery, liquid crystal and biochip. The solution of metal-polymer ~~chelate(s)~~chelate(s) of the invention also can be used for the reactions in the technical area of chemical engineering to remove gases and process waste solvent solutions.--

*Please amend the paragraph beginning on page 5 at line 6 as follows:*

--A further objective of the present ~~invention~~invention is to provide a solution of metal-polymer ~~chelate(s)~~chelate(s) that solves existing technical problems and improves the practicability and economic effect, so that the invention can provide high performance and useful applications for the industry.--

*Please amend the paragraph beginning on page 5 at line 10 as follows:*

--To achieve the foregoing objectives, the present invention provides a solution of metal-polymer ~~chelate(s)~~chelate(s) prepared by mixing water, R-COOH, carbohydrate molecules and/or hydroxyl or hydroxyl amino and/or carboxyl and/or carbohydrate polymers and metal salts, wherein each composite is provided as follows: water: 0.1-99.87; R-COOH: 0.01-40; carbohydrate molecule and/or hydroxyl or hydroxyl amino and/or carboxyl and/or carbohydrate polymers: 0.01-30; metal salts: 0.01-30; and the composites are sequentially added and blended, or heated, wherein R-COOH is an organic acid or an organic

acid matter.--

*Please amend the paragraph beginning on page 5 at line 20 as follows:*

--In the foregoing solution of metal-polymer chelate(s)chelate(s), the solution of metal-polymer chelate(s)chelate(s) is prepared by using water and R-COOH to dissolve carbohydrate molecules (including glucosamine) and/or hydroxyl or hydroxyl amino and/or carbohydrate polymers (including chitosan) and metal salts and mixing them evenly according to a routine method.--

*Please amend the paragraph beginning on page 5 at line 25 as follows:*

--In the foregoing solution of metal-polymer chelate(s)chelate(s), the solution of metal-polymer chelate(s)chelate(s) is prepared by using water and R-COOH to dissolve carbohydrate molecules and/or hydroxyl and/or carbohydrate polymers, and then adding metal salts and ammonia or amine matter, and mixing them evenly according to a routine method.—

*Please amend the paragraph beginning on page 6 at line 3 as follows:*

--In the foregoing solution of metal-polymer chelate(s)chelate(s), the solution of metal-polymer chelate(s)chelate(s) is prepared by using water and R-COOH to dissolve carbohydrate molecules and/or monosaccharide bimolecules, and then adding metal salts and ammonia or amine matter, and mixing them evenly according to a routine method-mixed evenly.--

*Please amend the paragraph beginning on page 6 at line 8 as follows:*

--In the foregoing solution of metal-polymer chelate(s)chelate(s), the solution of metal-polymer chelate(s)chelate(s) is prepared by using water and R-COOH and/or alkaline saponification to ~~dissolved~~ R-COOH carboxylic acid with

mid to high quantity of alkyl R such as fatty acid and/or carbohydrate molecules, and then adding metal salts and ammonia or amine matter, and mixing them evenly according to a routine method.--

*Please amend the paragraph beginning on page 6 at line 14 as follows:*

--In the foregoing solution of metal-polymer chelate(s)chelate(s), the metal salt is one or more monovalent, bivalent, or trivalent metal salts and has a composition in percentage by mass equal to 0.01~30% of the mass of solution of metal-polymer chelate(s)chelate(s).--

*Please amend the paragraph beginning on page 6 at line 18 as follows:*

--In the foregoing solution of metal-polymer chelate(s)chelate(s), the metal salt is a beryllium, magnesium, calcium, strontium, barium, radium, nickel, chromium, lead, copper, iron, zinc, titanium, manganese, cobalt, silver, gold, platinum, palladium, cadmium, lithium, rubidium, cesium, mercury, tin, zirconium, aluminum, thallium, antimony, bismuth, germanium, gallium, molybdenum, tungsten, yttrium, scandium, iridium, rhodium, technetium, osmium, ruthenium, rhenium, vanadium, indium, manganese, lanthanide or actinium series metal salt.--

*Please amend the paragraph beginning on page 6 at line 25 as follows:*

--In the foregoing solution of metal-polymer chelate(s)chelate(s), there is one or more R-COOH groups having an amount of 0.01%~40% of the total amount of the solution of metal-polymer chelate(s)chelate(s), wherein R stands for an alkyl radical or an alkyl matter.--

*Please amend the paragraph beginning on page 7 at line 2 as follows:*

--In the foregoing solution of metal-polymer chelate(s)chelate(s), the R-COOH is monocarboxylic acid, dicarboxylic acid, tricarboxylic acid, acetic acid, citric acid, vitamin C, salicylic acid, ethylene glycol, formic acid, propionic acid, malonic acid, lactic acid, malic acid, succinic acid, maleic acid, fumaric acid, ortho acid, oxalic acid, lauric acid, adipic acid, tartaric acid, lycium acid, humic acid, nitrified humic acid, fatty acid, an opine of a plant, carboxyl acid fiber, or carboxyl resin such as amberlite IRC-50.--

*Please amend the paragraph beginning on page 7 at line 9 as follows:*

--In the foregoing solution of metal-polymer chelate(s)chelate(s), there is one or more carbohydrate molecules and/or hydroxyl or hydroxyl amino and/or carboxyl and/or carbohydrate polymers with a percentage by mass equal to the mass of the solution of metal-polymer chelate(s)chelate(s), and the carbohydrate molecule and/or hydroxyl or hydroxyl amino and/or carboxyl and/or carbohydrate polymer is sucrose, maltose, lactose, rechalose, bicarbohydrates, monocarbohydrate (including glucosamine); ~~degradated~~degraded oil; or artificial synthetic chitosan, chitosan; seaweed cell wall (containing calcium without the need of adding a metal salt); ~~cereal~~cereal of a plant such as an unhusked rice of a plant (already having calcium, and thus it is not necessary to add a metal salt) or monosaccharide bimolecules of cytokinin-O-glucosides. In other words, cytokinin is combined with glucose to produce a substance capable of promoting the cytokiniesis, while it has a substance similar to the kinetin; or it goes with polyvinyl alcohol or polyvinyl alcohol having ammonia (or amine) matter; or it goes with humic acid, nitrified humic acid, peat or nitrified humic acid or humic acid having ammonia (or amine) matter without the need of using acid for dissolution; or 0.1~6% of hydroxypropylmethyl cellulose (HPMC) and 1~4% of chitosan; or 0.1~6% of hydroxypropylmethyl cellulose (HPMC) and 1~4% of

artificial synthesized chitosan; or it goes with hydroxypropylmethyl cellulose (HPMC) of ammonia (or amine) matter; or hydroxypropylmethyl cellulose (HPMC); or amino polyvinyl alcohol; or the foregoing hydroxyl or hydroxyl and amino and/or carboxyl and/or carbohydrate polymer or the foregoing polmerpolymer and oil or the ~~mxture~~mixture and sugar.--

*Please amend the paragraph beginning on page 8 at line 4 as follows:*

--The foregoing solution of metal-polymer chelate(s)chelate(s) is characterized in that the metal-polymer chelatechelate is a solution of metal-polymer chelate(s)chelate(s) having monosaccharide molecules (containing glucosamine) or containing monosaccharide bimolecules or disaccharide or hydroxyl or hydroxyl and amino and/or carboxyl and/or carbohydrate polymer, wherein the polymer bridging agent (preferably a monosaccharide or a solution of metal-polymer chelate(s)chelate(s) having monosaccharide bimolecules) and/or inorganic polymer carrier (including inorganic and organic bridge inorganic polymers or nano inorganic polymer and/or a plant fiber (including carboxyl acid fiber or modified carboxyl acid fiber) and/or carboxyl resin such as amberlite IRC-50 and amino resin or inorganic matter such as polylysine or aminosilane, wherein the metal-polymer chelatechelate and/or inorganic polymer carrier and/or plant fiber and/or carboxyl resin and amino resin or inorganic matter can be solid-liquid separated, purified to an amino metal compound or an amino metal polymer or an amino nano metal polymer or an amino nano metal compound or a nano metal polymer or a nano metal compound or an amino biological protein or a pure biological protein.--

*Please amend the paragraph beginning on page 8 at line 20 as follows:*

--In the foregoing solution of metal-polymer chelate(s)chelate(s), the solution

of metal-polymer chelate(s)chelate(s) includes/excludes a moisture absorbent combined with the hybrid.--

*Please amend the paragraph beginning on page 8 at line 23 as follows:*

--In the foregoing solution of metal-polymer chelate(s)chelate(s), the polymer bridging agent or the moisture absorbent combined with the hybrid is polyvinylpyrrolidone (PVP).--

*Please amend the paragraph beginning on page 8 at line 26 as follows:*

--The foregoing solution of metal-polymer chelate(s)chelate(s) is characterized in that the solution of metal-polymer chelate(s)chelate(s) includes/excludes a protein enzyme or a bacteria or a cell.--

*Please amend the paragraph beginning on page 9 at line 2 as follows:*

--In the foregoing solution of metal-polymer chelate(s)chelate(s), the solution of metal-polymer chelate(s)chelate(s) and/or hydroxyl polymer includes/excludes a silicic acid and/or a nano powder.--

*Please amend the paragraph beginning on page 9 at line 5 as follows:*

--The foregoing solution of metal-polymer chelate(s)chelate(s) is characterized in that the solution of metal-polymer chelate(s)chelate(s) applied for the production of a nano material or a nano ceramic or a nano plastic or a nano textile in the industry includes gas, liquid and solid ozone, strong oxygen O<sup>-</sup> or O<sub>2</sub><sup>-</sup>, hydrogen peroxide, nitrogen gas, ammonia and ammonia gas, sulfur and sulfur gas, phosphoric acid, nitric acid, hydrofluoric acid, boric acid, sulfuric acid, carbonic acid, sulfonic acid, hydrochlorous acid, trichloroacetic acid, isophthalic acid, phthalic acid, graphite, carbon black, bone, pearl, enamel,--

*Please amend the paragraph beginning on page 9 at line 13 as follows:*

--The foregoing solution of metal-polymer chelate(s)chelate(s) is characterized in that the solution of metal-polymer chelate(s)chelate(s) applied for the nano plastic or nano textile includes a plastic or rubber polymer.--

*Please amend the paragraph beginning on page 9 at line 16 as follows:*

--The forgoing solution of metal-polymer chelate(s)chelate(s) is characterized in that the plastic or rubber polymer is polyamide, polyimide, polyethylene, polyvinyl chloride, polyaniline, polystyrene, polyphenylenevinylene, acrylonitrile-styrene-butadiene, polyethylene oxide, epoxy resin, bakelite, polycarbonate, polypropylene, polyacrylic ester, polyester, polyurethane, polyolefin, polyvinyl butyral, polysiloxanes, pinene oxide (PNO), rubber, nitrile butadiene rubber (NBR), silicone, polyvinylpyrrolidone or its precursor or its oligomer or the foregoing modification and blending system.--

*Please amend the paragraph beginning on page 9 at line 24 as follows:*

--Compared with the prior art, the present invention obviously has the following advantages and benefits to achieve the objectives-objectives of the present invention, and the main technical content of the invention is described as follows:--

*Please amend the paragraph beginning on page 9 at line 27 as follows:*

--The invention provides a solution of metal-polymer chelate(s)chelate(s) that solves sucrose or maltose or lactose or rechalose or dicarbohydrates or monocarbohydrates;--

*Please amend the paragraph beginning on page 12 at line 7 as follows:*

--then no moisture absorbent will be needed to blend or mix the mixture evenly, and the solution is covered and soaked onto the ceramic structure, and the soaked ceramic is baked and dried to remove any water. In the relative humidity of over 99% or a dry condition, a ceramic catalyst carrier is produced for providing the capability of removing an organic solvent and other gases, as well as a gas having similar molecular weight or structure of the organic solvent for the volatile organic solvent or petroleum gases that can be condensed and oxidized and condensation. The condensation solution or the oxidizing condensation solution can condense a large quantity of organic solvents and waste solvents by a high-speed blending process at room ~~temerpature~~ temperature to condense the organic solvent into a clay solid, so as to develop develop a solvent processing machine.--

*Please amend the paragraph beginning on page 13 at line 4 as follows:*

--A chemical compound having the same chemical conditions and functions as the chitosan includes a hydroxypropylmethyl cellulose (HPMC) and an amino group, and the metal ion acts as a medium for being a catalyst for the metal ions, such that the hydroxypropylmethyl cellulose (HPMC) can be mixed withNH<sub>3</sub>with NH<sub>3</sub>. If the hydrogen of a R-OH functional group of the hydroxypropylmethyl cellulose (HPMC) is dehydrogenated and dehydrated by the metal such that NH<sub>2</sub> can be halfly bridged and combines with the hydroxypropylmethyl cellulose (HPMC) to produce R-NH<sub>2</sub>. By then, this solution is a polymer hybrid having the same chemical solution, chemical state and chemical molecular structure as those of chitosan, and becomes an artificial imitated chitosan solution containing metal ions. The bacteria or enzyme or nucleic acid or partial cell body is developed to a long-life, high-concentration bacteria or enzyme or nucleic acid or

cell body carrier. The imitated chitosan of the artificial imitated chitosan solution can be used in any area that the chitosan is used. The solution is fermented to produce a metal to a nano scale, and nano metal particles or nano metal oxides or nano complex metal oxides can be obtained by gas phase or liquid phase or combustion or carbonization methods. The imitated chitosan is developed into liquid crystal solution and other aspects for the applications in eight major enzyme systems. The principle for these eight major enzyme systems is similar to the principle described above. Regardless of having hydroxyl or hydroxyl and amino and/or carboxyl and/or carbohydrate polymer or disaccharide or monosaccharide or monosaccharide bimolecule, the imitated chitosan can be combined with the metal salts and then combined with carboxyl and amino groups to produce low to mid polymer metal-polymer chelatechelates. Some enzyme systems use inorganic polymer carrier and/or plant fiber and/or carboxyl resin and amino resin or inorganic matter and/or enzyme system and the principle for the application in biochemical and nano areas.--

*Please amend the paragraph beginning on page 14 at line 4 as follows:*

--In view of the description above, the present invention provides a hybrid structured polymer, wherein the hydroxypropylmethyl cellulose (HPMC) is soaked in an acidic solution with a concentration of 0.1~10%, and in fact this solution is made according to a formula with the composition of water:acetic acid or other carboxylic acid:hydroxypropylmethyl cellulose (HPMC) or other (chemical substance-OH)<sub>n</sub> polymer:acidified or chlorinated monovalent, bivalent, or trivalent metal ions equal to a proportion within 97: 1: 1: 1 and 88: 4: 4: 4, and the composites are added and blended sequentially, and ammonia (or amine matter) is added. Since it already has an amino group, and thus it is not necessary to add the amino group. A bacteria or enzyme or smaller nucleic acid or

partial cell body can be added for the fermentation and growth and used for the biochemical area and producing nano and liquid crystal materials.--

*Please amend the paragraph beginning on page 15 at line 13 as follows:*

--5. The invention creates an artificial imitated chitosan ~~solution~~solution containing metal ions to improve the sources and diversified applications of chitosan.--

*Please amend the paragraph beginning on page 15 at line 24 as follows:*

--FIG. 2 is a schematic view of the structure of R-NH<sub>2</sub>-M used in the present invention, wherein the chitosan and metal solution are obtained by a ~~direct~~direct reaction;--

*Please amend the paragraph beginning on page 17 at line 23 as follows:*

--or an independent hydroxypropylmethyl cellulose (HPMC) (it is not ~~necessary~~necessary to have an amino or ammonia or amine matter, if the HPMC is used as a degradation solution), or the foregoing several liquids are mixed.--

*Please amend the paragraph beginning on page 18 at line 24 as follows:*

--An ideal upper limit is 100%, since chitosan carries positive charges and ~~preferably~~preferably has amino groups, and the complex metal iron ion (and the iron ion and a mixture of other metal ions) can induce a push or a pull in opposite ~~direcdtions~~directions to produce negative electrons when carrying out the oxidization, and the oxidation is held at the reacting gas, so as to produce anions for the oxygen gas and also produces oxygen cations.--

*Please amend the paragraph beginning on page 19 at line 6 as follows:*

--5. Such condensation solution or oxidizing condensation solution or oxidized reaction solution or degradation reaction solution and a content of 0.1~3% PVP K-30 are melted evenly without affecting the moisture absorbent of the reacting solution of chelate(s)chelate(s), or no moisture absorbent is used as follows:--

*Please amend the paragraph beginning on page 20 at line 21 as follows:*

--The foregoing functional groups in the solution of the PVA or other polymer (chemical substance-OH)<sub>n</sub> or other polymer (chemical substance-OH)<sub>n</sub> already having -NH<sub>2</sub> amino group, or chitosan, or humic acid, or hydroxypropylmethyl cellulose (HPMC) have the following fermentations (The first three are not for sure, or the fermentation requires a carbohydrate to act as an accelerator, and if its (R-OH)<sub>n</sub> is similar to a carbohydrate structure, the solution will be dissolved by the carboxyl group, and there is an amino group allocated in the metal hybrid structure, and the molecular bond includes asymmetric carbon atoms in a special helix form to assure the occurrence of the fermentation) and the following~~following~~ properties similar to the principle of the hybrid including hydroxypropylmethyl cellulose (HPMC) together with metal ions and amino compounds and featuring a high-efficiency and enduring stable fermentation. If metal ions are used as a medium for mixing hydroxypropylmethyl cellulose (HPMC) with NH<sub>3</sub> with NH<sub>3</sub>. If hydrogen in the R-OH functional group of the hydroxypropylmethyl cellulose (HPMC) is dechlorinated and dehydrated to produce R-M by the metal ions:--

*Please amend the paragraph beginning on page 21 at line 24 as follows:*

--a. If the reacting quantity of the amino groups and the reacting quantity of the (metal) ions are not too large, then many metal ions are half-bridged with

a-R main body, and connected to an electric hole, for moving the ionized electron to an opposite direction, and thus a degradation will be conducted to form a PVA hybrid, and increase the level of polymerization. It tends to have a gelation, and the adsorbility of the structure is increased, and the high temperature carbonization can be used as an adsorberabsorber--

*Please amend the paragraph beginning on page 24 at line 15 as follows:*

--Further, the compound or polymerin polymer in the metal-polymer chelatechelate can use the plant fiber and/or the carboxyl resin including a carboxyl group for the dissolution, and ammonia is added to the bridge compound or polymer of the metal ions for driving the amino solution, and then the carboxyl resin or plant fiber can be performed with a solid-liquid separation and purification to produce an amino metal compound or an amino metal polymer. Such amino matter is at a polarity state and provides various different applications. If the foregoing metal-polymer chelatechelate uses plant fibers and/or carboxyl resins including carboxyl groups as an acid for the dissolution for the fermentation, ammonia or amino resin or inorganic matter such as polylysine or aminosilane will be used as an amino bridge, and a solid-liquid separation is conducted after the fermentation to obtain amino nano metal polymer or amino nano metal compound or nano metal polymer or nano metal compound or amino biological protein or pure biological protein, and their application will be used as described below.--

*Please amend the paragraph beginning on page 25 at line 15 as follows:*

--From the description above, the anions of the reacting solution produced at each stage of the condensation, oxidized condensation, and oxidation form a film. In the condensation, the electric conductivity is different, and the electric

conductivity is small, and the electric resistance is large. In the oxidizing condensation, the electric conductivity is moderate, and the electric resistance is moderate, and if the film formed in the oxidation has friction (~~cleam~~clean gas is passed), the electric conductivity of the anion will be large and the electric resistance of the anion will be small (where the normal leather film is non-conducting), and thus we use different reactions at different stages to fit different gases. If the electric resistances at different areas react with the contaminated gases, the reactions at different stages will have fluctuating electric resistance. If it is condensed to a dry adsorption reactant at the air sucking pipe, it has a specific weight and a constant electric resistance, and thus the solvent gas is absorbed when the air pump of the air pipe is started, so as to form suspending colloidal particles fixed on the adsorbentabsorbent, and the mass of the adsorbed absorbed solvent gas is increased at the air pipe including the adsorbentabsorbent, and the electric resistance of the air pipe will be increased. The larger the concentration of the solvent gas, the larger is the mass of solvent gas to be reacted to form the suspending colloid, and the higher is the electric resistance. The method of increasing the electric resistance to a larger value to compare the increase of mass, and then converting the concentration (for a mid-sized single gas molecule, the complex gas of the same kind uses the total amount of hydrocarbons for the ~~mesurement~~measurement). Similarly, the same applies to the oxidizing condensation (for a mid-size single gas molecule, and the gas has a high stability and free of radicals, the complex gas of the same kind used the total amount of hydrocarbons for the measure, when it is necessary to perform the oxidization before the condensation). If anions are produced in the oxidation and the formed film has friction (~~cleam~~clean gas is passed), the electric conductivity of the anion will be large, and the electric resistance will be small. If it is reacted with the contaminated gas, the produced

anions will be consumed, and thus the electric conductivity will become small and the electric resistance will become large. From the increased value of the electric resistance, we can know the quantity and concentration of the consumption. The concentration is set to zero if a clean air is passed, we can obtain the concentration by the consumption (For a small-sized single gas molecule, the complex gas of the same kind uses the total number of hydrocarbons for the measuremetnmeasurement).--

*Please amend the paragraph beginning on page 26 at line 24 as follows:*

--For example, the molecular weights of the hydroxypropylmethyl cellulose (HPMC) system in Embodiment 5 have different viscosities: cps75000 and cps400 and result in a hybrid with a larger molecular weight and a hybrid with a smaller molecular weight as well as a condensation and an oxidizing condensation, wherein the metal salt of copper sulfate is used to increase the electric conductivity. In the same formula, the graph of the relation between the electric resistances of different reactions is plotted, and instruments are used to correct the positive electric resistance and the increase of mass and the concentration of gas, and then a microcomputer is used to compute and display the correct data. Similarly, the anions produced in an oxidation as illustrated in Embodiment 1, if the complex gases of different kinds (referring to the mid-sized solvent gas molecule and the small-sized gas molecules such as SO<sub>x</sub> and NO<sub>x</sub>) are tested, the anions produced in the oxidation as illustratedillustrated in Embodiment 2 oxidation are used as a probe, because the air friction at its film produces anions for the small-sized gas molecules as well as the mid-sized gas molecules for the oxidizing condensation. The unique graph of the electric resistances can measure the concentration of the total consumption of hydrocarbons in the complex gases of different kinds, and this kind of ~~probles~~

probes can measure the polymer gas such as the smell of plastics. The polymer gas requires a strong oxidizing degradation for the mid-sized gas molecules and a set of oxidizing condensation is performed to remove and process the graph of the electric resistance of the polymer gas versus the concentration, so that it can be used for detecting the gas concentration. If this system is used together with nano carbon tubes, the electric resistance and sensitivity of the gas can be identified more clearly.--

*Please amend the paragraph beginning on page 27 at line 22 as follows:*

--Further, the fermentation at the metal-polymer chelate(s)chelate(s) is developed to produce a biocatalyst for the metal enzyme. Traditional metal enzymes are fermented enzyme compound plus metal ions, and their life expectancy is limited, but the life and activity of the fermented enzyme of the metal-polymer chelate(s)chelate(s) (such as the hydroxypropylmethyl cellulose (HPMC) system) can be extended unlimitedly, and it becomes a high-performance, high-level, metal biocatalyst. A specially made metal biocatalyst is added to different reacting solutions according to different reactions, and the catalyst provides a synergy for the processing of gas or chemical substance. This solution can add other precipitating agents, or add an alkali, or add excessive metals such that it can be precipitated, or add adsorbent to promote the precipitation, such that it is converted to a solid metal enzyme biocatalyst.--

*Please amend the paragraph beginning on page 28 at line 7 as follows:*

--From the description above, a carboxylic acid including a -COOH group dissolves chitosan or hydroxypropylmethyl cellulose (HPMC) or the R-NH<sub>2</sub> includes an amino group just like the humic acid already having a carboxyl group, so that the whole solution has the amino (alkaline) group as well as the carboxyl

(acidic) group, and the so-called positive and negative molecules for driving the catalysis of the whole solution. In the formation of hybrids, the negative molecule and positive molecule are adjacent to each other and gradually developed to tens or ~~hundreds~~hundreds of hybrid tissues, just like the form of protein tissues. The amino acid also has an amino (alkaline) group and a carboxyl (acidic) group, and they are connected linearly to form circular bond to provide a unique configuration for each protein. Since the hybrid solution and protein tissue provide a very good compatibility for the positive and negative charges and are developed to carries of the protein substances such ~~sa-as~~as cell, bacteria, enzyme, nucleic acid, DNA and RNA. If chitosan (already having an amino group) is bonded with the R-NH<sub>2</sub>-(metal ions) of the hybrid structure, humic acid, and the (dehydrated-OH radical) of the hydroxypropylmethyl cellulose (HPMC) is bonded with R-metal ions-NH<sub>2</sub> of the hybrid structure, and the electrons of the two will move in different directions, and thus causing different catalyses and ~~sensitivities~~sensitivities. Further, the proteins are dissolved preferably with an electric potential suitable for each protein.--

*Please amend the paragraph beginning on page 29 at line 17 as follows:*

--If the solution of other polymers (chemical substance-OH)<sub>n</sub> has functional groups or the solution of other polymers (chemical substance-OH)<sub>n</sub> having functional groups already ~~already~~ includes the -NH<sub>2</sub> amino group, then the main chemical composition of these solutions has a carbohydrate structure such as chitosan, humic acid, and droxypropylmethyl cellulose (HPMC) that can be fermented, and if the main chemical composition is not a carbohydrate structure, then carbohydrates are ~~adde~~added to assist the fermentation. The molecular bond includes asymmetric carbon atoms featuring a special helix structure and a high stability of fermentation stability, and the monosaccharide or disaccharide

can be added. The stability becomes very high and the life expectancy becomes very long, after the monosaccharide is added. If PVA already has a trace of acetic acid radicals, some acetic acid is added, and metal salts are added into the water solution, then the solution will be dehydrogenated and dehydrated, and blended at a high speed while the ammonia water is added slowly to form the hybrid. Carbohydrates such as monosaccharide are added and mixed evenly, and then the growth of bacteria or enzyme or tiny nucleic acid or partial cell body can be maintained, and its solidified structure includes: PVA-metal M-NH<sub>2</sub>-protein enzyme-sugar, which is R-M-NH<sub>2</sub>-protein enzyme-sugar, and such structure can preserve the bacteria with a long life. Since the PVA does not have asymmetric carbons, it only can maintain the life of bacteria without a good duplicating capability. If there are asymmetric carbons in the aforementioned situation, the life of bacteria can be maintained and a good duplicating capability is provided as well. Further, a polymer unit that is not saturated with fatty acid is taken for example, and an oil is added into the acetic acid, pure water, metal salts, ammonia water, monosaccharide and mixed evenly, and then bacteria or enzyme or smaller nucleic acid or partial cell body are added for the growth of fermentation, and its solidified structure includes: fatty acid-M-NH<sub>2</sub>-protein enzyme-sugar, and such structure can maintain a long life for the bacteria. In fact, the hybrid of carboxyl and metal ions of the fatty acid and the hybrid structure produced by the allocated amino groups can solidify and fix the enzyme protein, since this fatty acid includes high-carbon molecular R, and others include organic carboxylic acid. If there is no R that includes more carbons, and thus it cannot produce hybrid at a leading position, and thus the structure of this type of fatty acid-M-NH<sub>2</sub>-protein enzyme-sugar is a reprint of cell tissues.--

*Please amend the paragraph beginning on page 31 at line 26 as follows:*

--Further, the industrial oil products include OH radical, and the fatty acid of the industrial oil is accomplished by the foregoing fatty acid-M-NH<sub>2</sub>-protein enzyme-sugar structure, wherein M stands for different metal ions, and calcium is the safest element for this purpose, and the protein is fermented to form an emulsified oil that can act as an additive to dissolve gases or fuels. The fermentation of proteins ~~an-can~~ promote the combustion or decomposition of the oil, and calcium ions in the fermentation is turned into a nano scale, such that if an engine is ignited, the fermentation of proteins and the spontaneous combustion changes the calcium ions into nano calciums, and provides a complete combustion for the oil, enhance the horsepower, and lower the pollution. The nano calcium can decompose waste gases and will not hurt human bodies. For example, this kind of emulsified matters such as the fatty acid-M-NH<sub>2</sub>-protein enzyme-sugar can be added to ~~an-a~~ lubricating oil to dissolve the lubricating oil as an additive, such that if a cylinder wall requires a coating of nano metals, then the foregoing formula can coat a layer of nano metal on the cylinder wall if the engine is at a high temperature, wherein the fermentation of proteins primarily promotes lubricating or adhering the metal, and the metal ion becomes a nano metal such as aluminum, gold and titanium or a complex metal. Further, waste food oils are used as engine fuels, if the emulsified oil is ~~belong~~belongs to this type of fatty acid-M-NH<sub>2</sub>-protein enzyme-sugar matter, wherein the enzyme can change the volatility of the waste food oils, so that hydrocarbons are vaporized under the engine compression ratio, and then dissolved with the waste food oils and used as a fuel oil or specific industrial and commercial purpose oil products or specific functioned food oil products can use similar methods. Therefore, the foregoing solution is used extensively in oil products.--

*Please amend the paragraph beginning on page 32 at line 25 as follows:*

--For example, a disaccharide such as sucrose having a low molecular weight is added with acetic acid, pure water, metal salts, ammonia water and mixed evenly, and then bacteria or enzyme or smaller nucleic acid or partial cell body is added for the fermentation and growth, and the solidified structure includes:sucrose-M-NH<sub>2</sub>-protein enzyme, and this kind of structure does not need the assistance of carbohydrates, because it already has sucrose, and thus the life of bacteria can be maintained very long. Another protection of the sucrose resides on that the whole dry sugar cane can be cut into small pieces so that they cannot be separated from the bagasse, and the juice of sugar ~~cane~~cane will not turn rotten because of the protection provided by such dry sugar cane fiber, and then acetic acid, pure water, metal salts, ammonia water are applied and mixed evenly, and the bacteria or enzyme or smaller nucleic acid or partial cell body can be fermented and grown, and its solidified structure includes:R-sucrose-M-NH<sub>2</sub>-protein enzyme, wherein R refers to a dry sugar cane fiber (plant fiber). Assumed that monosaccharide, acetic acid, pure water, metal salt, ammonia water are mixed evenly, a polymer hybrid will not show, but only a single scattered micromolecular hybrid shows, and they cannot be connected into a whole piece, so that the stability and constancy of fermentation is very limited. The fermentation used to achieve the metal in a nano scale is not very effective, since the overall current is not driven. If polymer bridging agent or plant fiber or inorganic polymer carrier (including inorganic and organic bridge inorganic polymer or nano inorganic polymer) imitates the theory of a dry sugar cane fiber, the fermentation and metal nano condition of a small hybrid molecule at the connecting portion can be improved. Therefore, the formula also can be applied to the arrangement of mixing monosaccharide, acetic acid, pure water, metal salts, ammonia water evenly and adding polymer bridging agent or plant fiber or

inorganic polymer carrier, and it includes R-monosaccharide-M-NH<sub>2</sub>-protein enzyme, and the linearity of the polymer bridging agents is better and the joining line is linear to form a bond. If the glucose follows the method of the artificial imitated chitosan dry powder having no acetic acid can become an artificial imitated glucosamine showing a R-glucose-M-NH<sub>2</sub> structure, wherein R refers to dry sugar cane fiber and/or coconut fiber and/or palm fiber (plant fiber and/or including carboxyl acid fiber and/or including carboxylic resin), M refers to a trace of calcium, and a removal of R changes the structure to a glucose-trace of M-NH<sub>2</sub> including trace of calcium glucosamine (amino metal compound ), to be used for dietic health care, cosmetics and emulsification functions.--

*Please amend the paragraph beginning on page 35 at line 7 as follows:*

--Further, the fiber containing carboxyl acids or modified fibers containing carboxyl acids or carboxyl resins such as amberlite IRC-50, pure water, cereal of a plant such as unhusked rice, [[,]] ammonia water are mixed evenly for the fermentation of a polymer hybrid, and the smashed unhusked rice includes a glycan matter and calcium and shows a R-glycan matter-calcium-NH<sub>2</sub>-protein enzyme, which is a R-unhusked rice-NH<sub>2</sub>-protein enzyme, and R refers to the smashed fiber including carboxylic acid (plant fiber or carboxyl resin such as amberlite IRC-50), and it is not necessary to add acetic acid for very good stability and constancy of the fermentation. This semi-solid matter is filtered to produce a liquid, which is a protein enzyme having no carrier and will not be contaminated easily, and thus it does not require any purification to obtain a solution of high-purity high-yield cell or bacteria or enzyme or vaccine. The solution can be used to cultivate and purify various different biological protein enzymes. Further, the R-seaweed cell wall (containing calcium)-NH<sub>2</sub>-protein enzyme can follow the foregoing method to purify the solution of high-purity high-

yield cell or bacteria or enzyme or vaccine, but it is necessary to prepare the disinfection measures first. Further, the combination of R-peat-calcium-NH<sub>2</sub>-protein enzyme, solid peat and calcium will not be precipitated, and the peat contains a humic acid with the properties of a glycan matter. The humic acid further contains the properties of carboxylic acid, and thus the peat-calcium-NH<sub>2</sub>-protein enzyme structure may have R (fibers of carboxyl acid or carboxyl resin) to achieve a high-purity high-yield cell or bacteria solution or enzyme or vaccine, but it is necessary to prepare the disinfection measure for the peat first. For R-hydroxypropylmethyl cellulose (HPMC) and humic acid and calcium-NH<sub>2</sub>-protein enzyme, the hydroxypropylmethyl cellulose (HPMC) and humic acid and calcium are mixed and gone through a pH-balanced precipitation to form a hybrid solid combined with calcium and filtered and mixed with the ammonia for fermentation to form hydroxypropylmethyl cellulose (HPMC) and humic acid and calcium-NH<sub>2</sub>-protein enzyme. Such structure may have R (fibers of carboxyl acid or carboxyl resin) to achieve a high-purity high-yield cell or bacteria solution or enzyme or vaccine. Further, the R-chitosan and calcium-NH<sub>2</sub>-protein enzyme can follow the foregoing method to purify the solution if high-purity high-yield cell or bacteria or enzyme or vaccine. The required enzyme solution can be filtered from the carrier, and those not used will be put back to the carrier for bridging and preserving the activity of the enzyme solution. Particularly, some vaccine or enzyme cultivation used for human bodies and animals does not require a carrier system accompanied to enter into a human body, and this kind of purifications purification is the most appropriate one because it is much simpler and easier than the technologies of affinity chromatography and anion-exchange chromatography (HPLC). If the fermented and purified matter does not need any remaining amino groups, the suspension and cultivation of amino resin or inorganic matter such as polylysine or aminosilane can substitute ammonia for

the fermentation, and then the purification (pure biological protein) is a typical application of the solution of metal-polymer ~~eholate(s)~~chelate(s) for the cultivation and purification of biological cell or bacteria or protein enzyme.--

*Please amend the paragraph beginning on page 36 at line 25 as follows:*

--Similarly, the foregoing technology of carriers having biological cell or bacteria or protein can be used for the cultivation and purification of non-protein such as bacteria metabolite and products, and the cultivation of general bacteria metabolite and product is to add a nutrient agent into the bacteria solution, so that the life cycle of the bacteria includes metabolism and growth, and the life cycle, growth, progress, and cultivation method and medium are designed according to the required metabolite. The quantity of carrier systems in accordance with the foregoing technology is the major factor for controlling the metabolism and growth of the bacteria. Different metabolism requirements fit different carrier systems, and the number of carriers can control the growth rate of bacteria and the required nutrition for the metabolism and the metabolic product. For instance, the more the carrier, the faster is the bacteria racing for the ~~nutrients~~nutrients, and the slower is the metabolic rate. By then, it is appropriate for the antibiotics in the bacteria to be cultivated. The less the carrier, the more is the productions, and the more is the ~~nutrient~~nutrient. The metabolic growth will become stable, and the yield will be stable. The half cycle achieved by the carrier system in accordance with the foregoing technology is very long, and is almost unlimited. It is one kind of biological reactors capable of continuously performing the biotransformation by a mobile blending reactor or a fixed-bed reactor or a moving bed reactor or super filtering film separating reactor, and the metabolite can be filtered and separated easily, and the purified metabolite can be removed by the bacteria in the body by microfiltration or

disinfection or other method. Another kind of biological reactors is a fatty acid-M-NH<sub>2</sub>-protein enzyme-sugar in a semi-solid gel (a filtered solution including carboxylic acid) mixed with a R (a fiber having carboxylic acid or carboxyl resin) can imitate the tissue of human body or animal cell, which is condensed and bridged like internal organs and fixed in the included layers. By then, the slow loop refers to the nutrition solution, and a specific metabolite is cultivated, and then the cultivation is specified. The description above shows a solution of metal-polymer chelate(s)chelate(s) used for the cultivation and purification of the biological cell or bacteria or protein enzyme and their metabolites.--

*Please amend the paragraph beginning on page 40 at line 12 as follows:*

--In the nano technology, usually it remains 10-6 nano after a metal solution is dried. To achieve a nano scale of 10<sup>-9</sup> m, a sol-gel method for transforming the solution to an organic metal first. The chemical process is difficult and confiscated as well. However, nowadays the protein enzyme is almost of the nano scale, and in the aforesaid enzyme system or hydroxypropylmethyl cellulose (HPMC) enzyme system, the internal R-metal ions-NH<sub>2</sub>-protein enzyme is at an interactive state. Since the protein enzyme will be fermented into the metal hybrid system to form an organic metal and in the solution the positive attraction force and an opposite attraction force will be mutually attracted, and it will lead to a miniaturization of metal ions and a nano scale. Using this technology, different kinds of metal ions can be nanonized for a variety of applications in different fields. In principle, a protein enzyme with a nano scale can have more nano metals and vice versa. If the nano quantity is smaller, its nucleic acid will be even smaller. The quantity of nano metal can be set. Some different protein enzymes have different metal crystal-phases. Those protein enzymes eating up heavy metals can even create a special crystal-phase structure. Hybrid with a higher molecular weight and that with a lower molecular weight will get different crystal-phase structure based on the same bacteria

fermentation. For obtaining high yield of nano metal, metal ions with highest rate approximately equal to 10% can be added into the enzyme system or add 10% fermentation first then ~~ass-add~~ some metal ions, however, the fermentation should be carried out during mixing procedure to avoid any precipitation. For obtaining smaller nano quantity, the metal ions specified in the hybrids table should be dosed. In the reacting solution forming hybrid, if the metal ions are impossible to be combined, it can be heated and mixed evenly; or for metal ions with smaller ion radius, they should be added and mixed with other metal ions; or after half fermentation of a trace of iron ion, add the metal ions which are difficult to be combined, for the purpose of continuation of fermentation and forming. Later, to obtain the nano iron. For obtaining metal, using the magnet to separate the iron for purification; or adjust the pH value to get the hybrid combined, structure tends to be stable etc. The nano metal protein is coated or sprayed onto the enzyme cloth for a dry thermal decomposition or a flame spray is performed for killing protein enzymes at a high temperature, or being partially combusted into a nano film or sintered without oxygen carbonization to remove the organic matter to form a metal carbonate or oxide;--

*Please amend the paragraph beginning on page 41 at line 24 as follows:*

--Finally, only the nano metal particle or nano metal oxide or nano complex metal oxide will ~~be remained~~ remain(for obtaining the complex metal, when adding the fermentation solution, the complex metal should be independently mixed evenly first prior to addition) for further application or the following purposes. Because the nano metal particles can remove the chemical substances, such as the dechlorination function; Nano oxide powder is featured with higher surface area and higher distribution of porous volumes and therefore, has excellent adhesion ability to solvent. The titanium catalyst solution is a practical case study. When the titanium sulfate and the acid dissolved hydroxypropylmethyl cellulose (HPMC) together with the amino have made a catalyst solution, after fermentation the titanium ion can be nanonized, after coating the Ti compound in the hybrid after half combustion tends to Ti oxide, and

become titanium dioxide powder film.--

*Please amend the paragraph beginning on page 42 at line 7 as follows:*

--Solution of metal-polymer chelate(s)chelate(s) to be added with silicic acid first to become the PVA-silicic acid-metal M-NH<sub>2</sub>-protein enzyme-sugar, it is the R-silicic acid-M-NH<sub>2</sub>-protein enzyme-sugar. The -OH radical of the Rand silicic acid and the metal M together with hybrid, after fermentation, the metal will get nanonized. The silicone (Si) can also be nanonized, and can be extended to become a nitrified silicone, carbonization silicone, siliconized complex metal nanonization, using nano material production heat treatment or during the ceramic firing reaction process to add nitrogen or shortage of oxygen or add other nano solution of metal-polymer chelate(s)chelate(s) to yield the nano silicone compound or to be mixed directly into the ceramic processing technology to produce the nano complex ceramic material. Additionally, for example, the solution of metal-polymer chelate(s)chelate(s) after fermentation, the metal can be nanonized; or in the ceramic process the fermentation solution of metal-polymer chelate(s)chelate(s) to be added directly, and in the firing process to get the desired nano complex ceramic material, one can see the setting what kind of nano powder is mixed evenly in there or the intention to obtain the pure nano powder to form nano ceramic. Then it is heated or ore-sintering and is mixed evenly or in the reaction adds in oxygen gas then the nano- oxidized metal can be obtained. Or add in nitrogen gas just like mixing in nano nitrified metal. By adding fluoric acid, then the nano fluoridefluoride metal can be obtained. By obtaining phosphoric acid, then the nano phosphoric acidic metal can be obtained. Based on these, one can separate and precipitate or generate crystal or mix this into the ceramic craft to produce a nano complex ceramic material and nano complex ceramic can be made to use the fermentation solution of metal-polymer chelate(s)chelate(s) (that can be mixed in many type ). In the course of dispersal, it has already possessed moisturized powder and after mechanical dispersion and stabilizing, mixing can be conducted by means of colloid grinding machine. Amongst these the fermentation chitosan or hydroxypropylmethyl

cellulose (HPMC) or polyvinyl alcohol nano system can all possess the characteristic of cohesive agent so that the dispersed mixed can be more stabilized and can avoid reunion phenomenon. It can control the turbid solution quality so that the base structure can be even to enter into form (press forming, casting forming) and ore-sintering or simultaneous proceeding of forming and ore-sintering. During ore-sintering, the wrapped and moist solution of metal-polymer chelatechelate will form carbonization like carbon black wrapping combustion and in the heat treatment, the carbon black will be oxidized. The ore-sintering in the course of ore-sintering the most important is control pressure and temperature. The ore-sintering is separated into reaction ore-sintering, atmosphere ore-sintering, heat pressure ore-sintering, discharged plasma ore-sintering, ultra high pressure ore-sintering and heat static pressure ore-sintering and high pressure ore-sintering and high pressure gas phase reaction ore-sintering etc. What kind nano structure and product is required use with the above ore-sintering method. In the most important course do not have reunion and crystal growth coarse to obtain high quality nano ceramic. For example, for the titanium oxide solution of metal-polymer chelate(s)chelate(s) (fermentation hydroxypropylmethyl cellulose (HPMC) system) at 50°C, correspondingly the humidity is 60%, the titanium oxide gel is obtained. After pouring forming on the gel of the biscuit of titanium oxide can be obtained. The biscuit obtained will have ore-sintering when it is closed to the anatase phase rutile phase change temperature that means under 600°C and obtained corresponding density of 99%. The size of crystal grain is only 60nm nano ceramic and under general condition, the density temperature of nano is between 800-1000°C. By dense ore-sintering under 600°C, it will sufficiently utilize the function of solution of metal-polymer chelate(s)chelate(s) during phase change of nano. Although the temperature of 600°C is comparatively, yet as the energy generated from phase change will promote the proceeding of ore-sintering and still can obtain dense nano ceramic.--

*Please amend the paragraph beginning on page 43 at line 31 as follows:*

--The nano solution of metal-polymer chelate(s)chelate(s) or multiple type of nano solution of metal-polymer chelate(s)chelate(s) (already under fermentation ) will spread evenly to plastic or rubber polymer, polyamide, polyethylene, polystyrene, epoxy resin, silicone---etc. as the basic material or series of mixed base material and the dispersal method is as follows:--

*Please amend the paragraph beginning on page 44 at line 5 as follows:*

--Nano solution of metal-polymer chelate(s)chelate(s) itself is assembled liquid and solution plastic or powder form plastic or melted plastic or polymer vanguard small molecular solution evenly mixed including mechanical dispersion, ultrasonic dispersion , high energy processing method and chemical dispersion.--

*Please amend the paragraph beginning on page 44 at line 12 as follows:*

--Ultrasonic dispersion : supersonic waves will damage the enzyme and hybrid structure of the nano solution of metal-polymer chelate(s)chelate(s) so that the nano metal is particle that will combine with plastic polymer sufficiently.--

*Please amend the paragraph beginning on page 44 at line 20 as follows:*

--Chemical dispersion: add surface chemistry modifier or compatibilizer or breaker such as hydrochlorous acid solution and afterward mix this into the nano solution of metal-polymer chelate(s)chelate(s) and plastic polymer so that the metal hybrid can separate and combine with plastic polymer.--

*Please amend the paragraph beginning on page 44 at line 24 as follows:*

--Another method is to base on monomer mixing of nano solution of metal-polymer chelate(s)chelate(s) and plastic polymer, then use the additional polymerization or contracted polymerization or combination solidification and will heat and vaporize to have a mixed forming.--

*Please amend the paragraph beginning on page 45 at line 8 as follows:*

--In another method of nano solution of metal-polymer chelate(s)chelate(s)

and polymer latex solution mixing such as dispersal of latex grain of latex . Then add in the flocculatin agent to disperse so that the entire system can be sedimented, centrifugal separation or water dehydration, heat dry and vaporize.--

*Please amend the paragraph beginning on page 45 at line 17 as follows:*

--For selective system there is chitosan or hydroxypropylmethyl cellulose (HPMC) or bicarbohydrates or monocarbohydrates, or ~~degradated~~degraded oils or polyvinyl alcohol or humic acid or mixed or other etc. nano metal-polymer chelatechelate system solution to promote reaction. Especially in some plastic add some fatty acid-M-NH<sub>2</sub>-protein enzyme-sugar and this system can cope with other system so as to promote blending.--

*Please amend the paragraph beginning on page 45 at line 23 as follows:*

--When metal-polymer chelatechelate has carboxyl, and on top of R-NH<sub>2</sub> including amino, such entire solution will possess amino ( alkaline ) as well as carboxyl (acid base) and clay mixed to obtain organic clay similar to amino acid. At this time, fermentation is feasible and then combines with plastic and rubber polymer with multiple compatibility.--

*Please amend the paragraph beginning on page 45 at line 28 as follows:*

--The above dispersal ~~meted~~method can separate or can combine with mixed use. The overheating evaporation or other heat melting press forming requires heat vaporization so that the metal hybrid will collapse and combine with plastic polymer. The forming methods can be separated into pressing forming, solidification forming, extraction forming, injection molding forming and injection forming etc. The above dispersal method can also be used in nano material production. The above requires adding of oxygen gas in heat reaction to obtain nano oxidized metal or to obtain nano carbonization silicone by oxygen deficiency or add in nitrogen gas in the reaction just like mixing in nano nitrified metal. The addition of fluoric acid can obtain nano fluoric metal. The addition of phosphoric acid can obtain nano phosphoric acid chemical metal. These can

be directly mixed in the plastic polymer.--

*Please amend the paragraph beginning on page 46 at line 11 as follows:*

--For example, by using the nano solution of metal-polymer chelate(s)chelate(s) in the humic acid-metal zinc-NH<sub>2</sub>-protein enzyme and for the manufacture of nano complex rubber in the complex rubber is to adopt mechanical filling dispersal method. In the rubber base, the humic acid-zinc-NH<sub>2</sub>-protein enzyme will exist in the form of separated and assembled body and it will have a cross unity enhancement function. For the humic acid-zinc-NH<sub>2</sub>-protein enzyme of the nano class assembled enhancement rubber, there are a few characteristics: there is a certain compatibility as rubber and there is suitable reaction activity with rubber. There is a certain self assembly ability. The even assembly matter of the separated assembly body has a better inner assembly ability. The induction of rubber is to enhance the cross unity efficiency (including cross unity speed and cross unity density). To improve the structure of the cross unity key (induce more ion cross unity key), one on hand it will generate joining and cross unity with large rubber molecule and then it will be heated and vaporized in the mixing and blending. The humic acid will complete in the reaction and will form carbonization. Therefore the temperature will progressively enter to high temperature from low temperature. Low temperature is to bring out its reaction and high temperature is because reaction is soon to be completed and the carbonization will disappear. What remains is combination of nano zinc or zinc oxide. For the mechanical function of the nano zinc filling rubber, the stretch intensity of pull is higher. In the nitrile butadiene rubber (NBR) of that form, fill in about nano zinc10% and the stretch intensity of its vulcanized rubber pull can reach about 55Mpa and this is the highest rubber intensity except the short fiber complex rubber.--

*Please amend the paragraph beginning on page 47 at line 3 as follows:*

--Solution of metal-polymer chelate(s)chelate(s) in the application of nano textile industry, nano fiber adding nano solution of metal-polymer

~~chelate(s)chelate(s)~~ (particle ) mixed yarn manufacture and coating processing and there is solution of metal-polymer ~~chelate(s)chelate(s)~~ used in textile product in the industry to extend the technology to conduct dye-transfer processing.--

*Please amend the paragraph beginning on page 47 at line 8 as follows:*

--Palletization method: in the course of assembly, after adding the solution of metal-polymer ~~chelate(s)chelate(s)~~ produce it as material slice.--

*Please amend the paragraph beginning on page 47 at line 12 as follows:*

--Injection method: in the yarn processing course, use syringe to add the solution of metal-polymer ~~chelate(s)chelate(s)~~ in the melted ~~polyesterpolyester~~ fiber and make into ~~polyesterpolyester~~ fiber. The method is to place the solution of the metal-polymer ~~chelatechelates~~ (dry) into the syringe and then pour in during the lever spinning. ~~PolyesterPolyester~~ slice cutting-dry-lever spinning-processing after rolling-polyester fiber.--

*Please amend the paragraph beginning on page 47 at line 16 as follows:*

--Solution ~~polyesterpolyester~~ fiber: base material used by solution spinning is mostly polypropylene. Normally the solution of metal-polymer ~~chelate(s)chelate(s)~~ is directly added to the polyester fiber solution to mix with the melted spinning. Also the ceramic inorganic salt can be dispersed to the solution of metal-polymer ~~chelate(s)chelate(s)~~ of the chitosan or hydroxypropylmethyl cellulose (HPMC) system and then conduct further fermentation and then add into the spinning solution.--

*Please amend the paragraph beginning on page 47 at line 23 as follows:*

--Implant processing method: the surface micro pore size and shape of the natural fiber and based on different fiber, the pore diameter of these micro pore is mostly and comparatively larger than the inorganic nano grain diameter. On the warp surface, the processed fiber will combine with inorganic nano. The activity of the solution of metal-polymer ~~chelate(s)chelate(s)~~ and natural fiber will

generate physical adsorptability and chemical combination.--

*Please amend the paragraph beginning on page 48 at line 1 as follows:*

--Coating method solution of metal-polymer chelate(s)chelate(s) will be evenly coated on the top of the natural fiber to form a layer of thick coating membrane. Then after drying and necessary heat treatment, various mechanical natural fiber processing can be conducted.--

*Please amend the paragraph beginning on page 48 at line 5 as follows:*

--The aforementioned solution of metal-polymer chelate(s)chelate(s) is characterized in that the solution of metal-polymer chelate(s)chelate(s) used in the nano plastic or nano textile industry includes plastic or rubber polymers, wherein the plastic or rubber polymer is polyamide, polyimide, polyethylene, polyvinyl chloride, polyaniline, polystyrene, polyphenylenevinylene, acrylonitrile-styrene-butadiene, polyethylene oxide, epoxy resin, bakelite, polycarbonate, polypropylene, polyacrylic ester, polyester, polyurethane, polyolefin, polyvinyl butyral, polysiloxanes, pinene oxide (PNO), rubber, nitrile butadiene rubber (NBR), silicone, polyvinylpyrrolidone or its precursor or its oligomer or the foregoing modification and blend system.--

*Please amend the paragraph beginning on page 48 at line 14 as follows:*

--Dye-transfer Process: The solution of metal-polymer chelate(s)chelate(s) of a monosaccharide system is a R-monosaccharide-M-NH<sub>2</sub>-protein enzyme, wherein R refers to a plant fiber or an inorganic polymer carrier (including inorganic and organic bridge polymer or nano inorganic polymer) formed to a nano scale after the fermentation is completed. If R (referring to a plant fiber or a carrier including carboxyl acid fiber or inorganic polymer) disappears, it is a monosaccharide-M-NH<sub>2</sub>-protein enzyme, and then the life of protein enzyme is

not very long and the protein enzyme is less stable. After a brief baking and disinfection, the monosaccharide-M-NH<sub>2</sub> is removed. By then, a metal M is in a nano scale and it includes an amino R, and the nano metal matter, is in a polarity state and similar to an azo dye developer R-NH<sub>2</sub> that matches up with an azo dye base for an azo coupling, so as to secure the nano metal matter on the fibers without causing any harm to human body. For example, the solution of metal-polymer chelate(s)chelate(s) for a monosaccharide system is placed in a (bridgeable) carrier filled with plant fibers. After a fermentation is completed, the metal is turned into a nano scale, and the solution of metal-polymer chelate(s)chelate(s) is squeezed from the plant fibers under pressure, and the squeezed solution of metal-polymer chelate(s)chelate(s) is baked at 80. c and disinfected by ultraviolet beams, and a dye-transfer process is carried out to the nano metal to coat a base in the dye-transfer process and dissolve the base in the water, such that the fibers are soaked into the base, and then the developer R-NH<sub>2</sub> is mixed with the nano monosaccharide-M-NH<sub>2</sub> for the nitrification to achieve the functional effect of a nano metal and show the color. These are the applications of the solution of metal-polymer chelate(s)chelate(s) in the nano textile industry.--

*Please amend the paragraph beginning on page 49 at line 11 as follows:*

--The foregoing reacting solution is a novel polymer liquid crystal material, and such biological liquid crystal features the mobility of the liquid and the sequence similar to a crystal structure. People discovered that many biological macromolecules such as RNAs, DNAs, proteins, fats, fat protein and polysaccharides have the properties of a liquid crystal, since they are made of a single helix structure and a double helix structurestrict. This fermentation series such as hydroxypropylmethyl cellulose (HPMC) is a double double helix structure

formed by the fermentation (the hybrid ~~structure~~structure not fermented is a single helix structure or this water soluble single helix structure can be used as a liquid crystal. After a nucleic acid is added and fermented, the added protein enzyme becomes a double helix structure) which is ~~stabler~~more stable than the single helix structure in the solvent. The double helix structure can exist stably without the solvent, and thus it can be developed more extensively. This solution copes with the fermentation by silver sulfate to make a nano silver and obtain a high light transmission rate in the visible light area and a nano liquid crystal solution ~~wet~~with a smaller resistance, or becomes a film after being dried. This nano liquid crystal and liquid crystal film electrode can be used in flat panel displays.--

*Please amend the paragraph beginning on page 50 at line 1 as follows:*

--The foregoing reacting solution is a novel ~~semiconducter~~semiconductor material that can fix a natural electronic component made of proteins or celluloses such as DNA of a plant at a monosaccharide enzyme system including a monosaccharide bimolecule-M-NH<sub>2</sub>-protein enzyme, a monosaccharide-M-NH<sub>2</sub>-protein enzyme-polymer bridging ~~agen~~agent and uses the ~~characteristee~~characteristic of a plant conducting photosynthesis to develop an organic electroluminescence (OL), and these two major enzyme systems are not fixed so securely, and the activity of enzymes can be ~~strengthened~~strengthened by external forces, and thus it requires plants to receive lights and produce electrons inside for the ~~growht~~growth. If no direct light is given for the reaction of the electrons, the reaction will be controlled by the surrounding growing conditions, so as to produce a reverse reaction to emit a light source, or the gene and enzyme of a luminous body of a firefly or an animal in water are used for the development. These are organic EL

semiconductor semiconductor components. Further, the protein chips use the protein molecules of the biological material such as the protein enzyme system of polyvinyl alcohol and goes ~~through~~through a ~~speical~~special art to prepare a layered structure of super film tissues. For example, the proteins are used to prepare a liquid of an ~~apppropiate~~appropriate concentration, so that the water surface is spread into a single molecular layer film which is then placed on a quartz layer. Similarly, a layer of organic film is prepared to obtain a biofilm with a thickness of several hundreds of nanometers. This kind of ~~films~~film is composed of two types of organic matter films. If ultraviolet rays are projected onto the protein enzyme system of a polyvinyl alcohol of one type of films, the resistance will rise approximately by 42%; and if visible lights are projected, then the resistance will resume its original status. However, the protein enzyme system of a humic acid of another type of films will not be affected by the visible lights, and if ultraviolet rays are projected, the resistance will be decreased approximately by 7%. The different protein enzyme systems of the two different solutions of metal-polymer ~~chelate(s)~~chelate(s) are combined to produce a biological material which becomes a novel light controllable switch component. This type of ~~films~~film can be used for developing bioelectronic components and creates the applications for ~~semiconductors~~semiconductors--

*Please amend the paragraph beginning on page 59 at line 13 as follows:*

--A nano filter (film) is produced, and the ~~remant~~remaining matter can be observed by a microscope.--

*Please amend the paragraph beginning on page 61 at line 12 as follows:*

--The foregoing single hybrid solution and 30% of plant fiber or inorganic polymer powder carrier produce macromolecules of hybrid, and the bacteria are

fermented, suspended, and cultivated to obtain a nano scale. It is extruded from plant fibers or inorganic polymer powder carriers and carboxyl resins, and the extruded solution of metal-polymer ~~chelate(s)~~chelate(s) is disinfected by ultraviolet beams to form R-NH<sub>2</sub>, which is a nano monosaccharide-M-NH<sub>2</sub> (or a nano metal compound) for dyeing and printing.--

*Please amend the paragraph beginning on page 68 at line 13 as follows:*

--While the invention has been described in terms of what is presently considered to be the most practical and preferred embodiments, it is to be understood that the invention ~~needs—is~~not be—limited to the disclosed embodiment. On the contrary, it is intended to cover various modifications and similar arrangements included within the spirit and scope of the appended claims which are to be accorded with the broadest interpretation so as to encompass all such modifications and similar structures.--

*Please amend the paragraph beginning on page 69 at line 17 as follows:*

--5. The invention creates an artificial imitated chitosan ~~solutions~~solution containing metal ions to improve the sources and diversified applications of chitosan.--

*Please amend the paragraph beginning on page 69 at line 19 as follows:*

--6. The invention creates a new culture medium for gas detection, artificial imitated glucosamine, disinfectant, biochemical reaction for fermentations, biological protein and ~~its~~its metabolite purification, genetic engineering, bacteria preservation system, medical science, oil product, plant, ~~semiconductor~~semiconductor applicability and cell ~~multiplication~~multiplication.--

IN THE ABSTRACT OF THE DISCLOSURE:

*Please amend the abstract as follows:*

-- In a solution of metal-polymer chelate(s)chelate(s) and applications thereof, a metal-polymer chelate-chelate is prepared by mixing water and R-COOH soluble carbohydride molecules and/or hydroxyl or hydroxyl amino and/or carboxyl and/or carbohydrate polymers, metal salts and/or ammonia or amines. The solution of metal-polymer chelate(s)chelate(s) is used extensively in different technical areas including oxidation, condensation, degradation, oxidizing condensation, gas detection, artificial imitated chitosan solution, artificial imitated glucosamine, disinfectant, biochemical reaction for fermentation, biological protein and its metabolite purification, metal enzyme biocatalyst, dry activation of protein enzyme, bacteria preservation systems, oil product, plant, semiconductorsemiconductor, nano filtration, nano material production, nano inorganic matter, nano ceramic, nano plastic, nano textile, battery, liquid crystal, and biochip. These reactions give effects for chemical engineering, gas removal, and waste solvent treatment.--